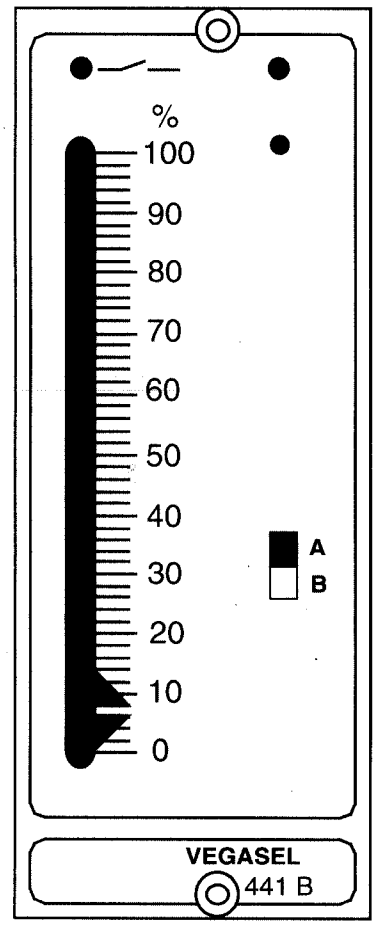
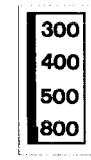
VEGASEL
441 B / 444 / 444 D

TIB • Technical Information • Operating Instructions



Auxiliary limit switch



For connection to signal conditioning instrument

- VEGAMET
  or
- instruments of other manufacturers

VEGA Grieshaber KG
Electronic level measurement
Am Hohenstein 113
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Application

VEGASEL 441 B, 444 and 444 D are adjustable auxiliary level switches and are used for additional level signalling for continuous measurements.

The VEGASEL 441 B has an adjustable switching hysteresis whereas the VEGASEL 444 or 444 D is provided with 2 independent relays with fixed switching hysteresis.

In conjunction with a VEGA-signal conditioning instrument VEGAMET the auxiliary level switch can be used independent of the level e.g. for min. / max. control, empty alarm, full alarm or alarm functions.

The control of VEGASEL 441 B, 444 and 444 D can be also carried out by instruments of other manufacturers as far as their output signal corresponds to the values given under "Technical data".

Configuration

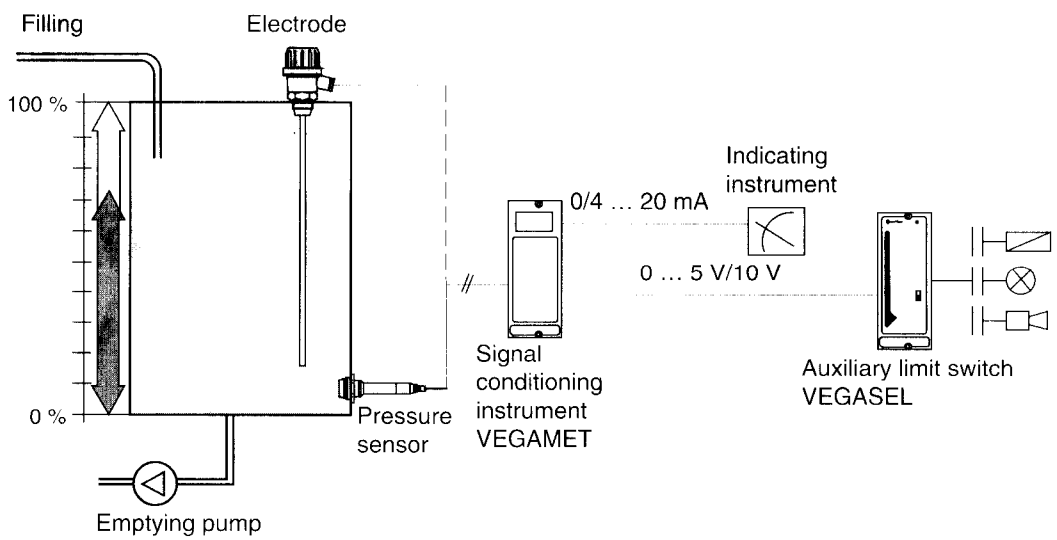
The VEGASEL 441 B / 444 / 444 D consists of:

- plastic housing with mounting socket (series 400)
- electronics
- relay output with floating spdt (VEGASEL 444 / 444 D: 2-wire) or
- floating transistor output (VEGASEL 444 / 444 D: 2-wire)
- front plate with:
  - A/B-switch (VEGASEL 444 / 444 D: 2-wire)
  - tandem potentiometer (VEGASEL 444 / 444 D: 2-wire)
  - relay control lamp (VEGASEL 444 / 444 D: 2-wire)
  - mains control lamp
  - spindle potentiometer
  - transparent cover (lockable)

A measuring system consists of:

- VEGASEL 441 B, 444 or 444 D
- signal conditioning instrument VEGAMET or instrument of other manufacturers (see application)
- transducer (electrode, pressure sensor, ultrasonic or radar sensor)

Note:
VEGASEL 444 / 444 D has only **one** common input for both spdt.



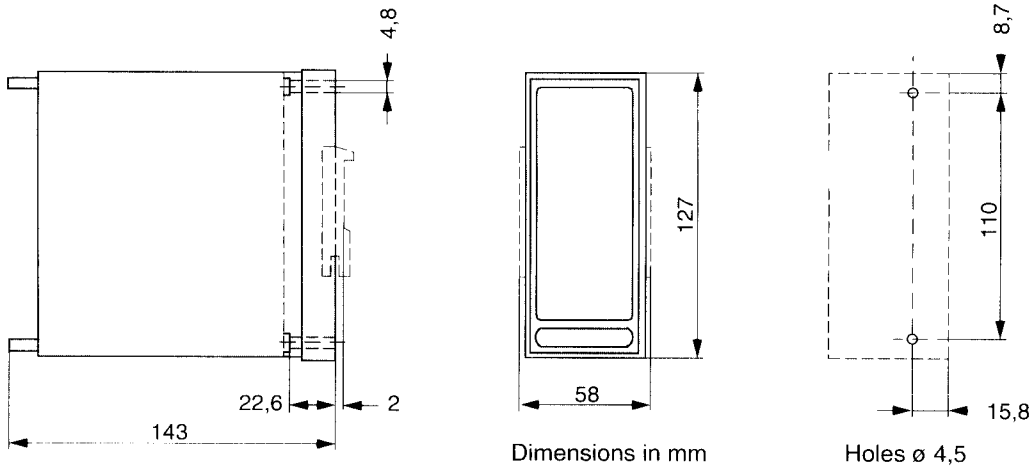
Function

The output signal 0 ... 5 V or 0 ... 20 mA transmitted by a signal conditioning instrument VEGAMET or an instrument of other manufacturers is detected by an adjustable switching amplifier and converted into a switching command. The switch point can be individually adjusted between 2 and 100 % via the tandem potentiometer (two slides on a resistor). The instrument operates as one-point level switch if both slides are set together to the requested percentage value (see "Start-up").

Technical data

Power supply		Value		Tolerance	Frequency
	standard	AC	220 V	+15 % -10 %	50 / 60 Hz
		AC	230 V	+10 % -15 %	50 / 60 Hz
	options	AC	110 V 130 V 240 V	+10 % -15 %	50 / 60 Hz
		AC	24 V 42 V 48 V	+10 % -15 %	50 / 60 Hz
		DC	9 ... 16 V	—	—
			16 ... 60 V	—	—
Power consumption at U_N		ca. 4 VA			
Voltage input	VEGASEL 441 B / 444	0 ... 5 V DC		Ri ≥ 100 kOhm	
	VEGASEL 444 D	0 ... 10 V DC		Ri ≥ 100 kOhm	
Output (standard)	type	relay output (VEGASEL 444 / 444 D: 2-wire)			
	contact	1 spdt			
	function	level signal			
	mode	A / B			
	relay data:				
	contact material	AgCdO		AgCdO and Au plated	
	min. turn-on voltage	12 V/24 V		50 mV	
	min. switching current	0,3 A/0,1 A		50 µA	
	max. turn-on voltage	AC 250 V, DC 60 V			
	max. switching current	AC and DC 2 A			
	max. breaking capacity	125 VA, 60 W			
Output (option)	type	floating transistor output (444 / 444 D: 2-wire) $U_B$max = 28 V DC $I_B$max = 10 mA U_{CE} min < 0,8 V at I_B = 10 mA			
Switch point accuracy related to the scale value		2 %			
Hysteresis as one-point level switch		approx. 2 %			
Hysteresis as two-point level switch		2 ... 100 % adjustable			
Ambient conditions	permissible ambient temperature	-20 ... +50°C / -4 ... 122°F			
	storage and transport temperature	-20 ... +70°C / -4 ... 158°F			
Housing	type	plastic ABS light grey			
	protection	IP 40			
	dimensions	W = 58 mm, T = 143 mm, D = 127 mm			
Terminal board with mounting socket		max. 1 x 1,5 mm²			
Weight incl. mounting socket		approx. 700 g			

Dimensional drawing



Dimensions in mm

Holes ø 4,5
or thread M4

Mounting instructions

The mounting assembly is provided as standard feature with

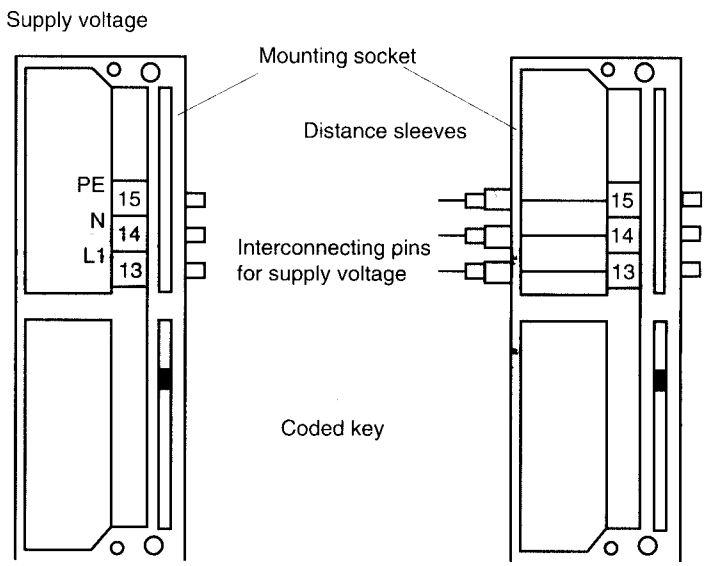
- respective terminals
- interconnection pins
- distance sleeves for mounting several instruments in a row
- coded key

Spacers slide onto the interconnecting pins and ensure that adjacent instruments have a minimum gap of 5 mm between each other.

For mounting on standard rail (TS 35 mm) an adapter is enclosed. The two screws located on the front of the VEGASEL are used to fasten the instrument to the mounting assembly.

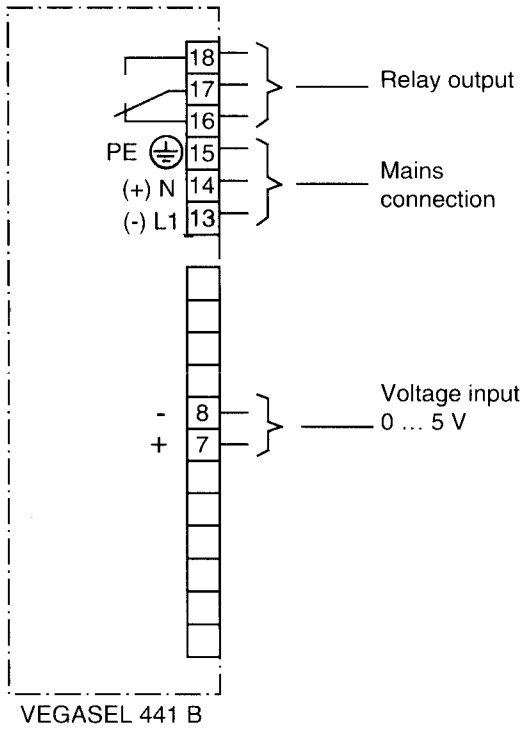
In case of single mounting remove the interconnection pins and connect the supply voltage directly. The coded key avoids that instruments of series 400 are exchanged.

Remove all interconnection pins on the first mounting socket.

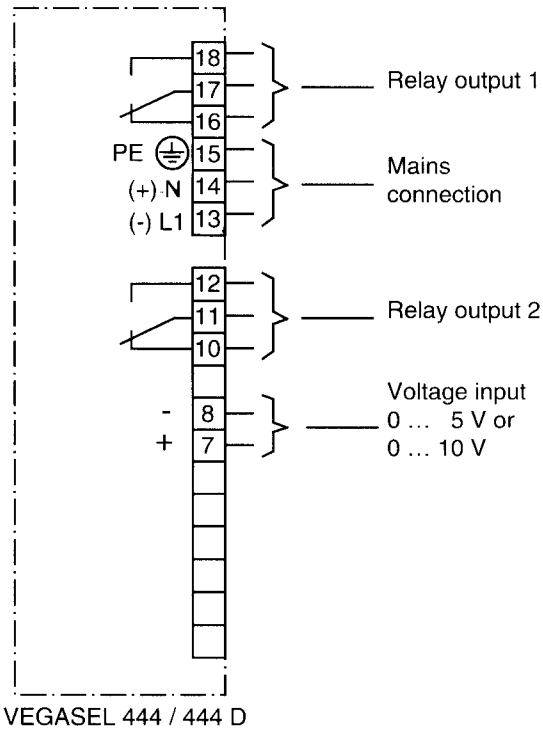


Note:
The pins on terminals 13, 14 and 15 carry the supply voltage.

Electrical connection



VEGASEL 441 B

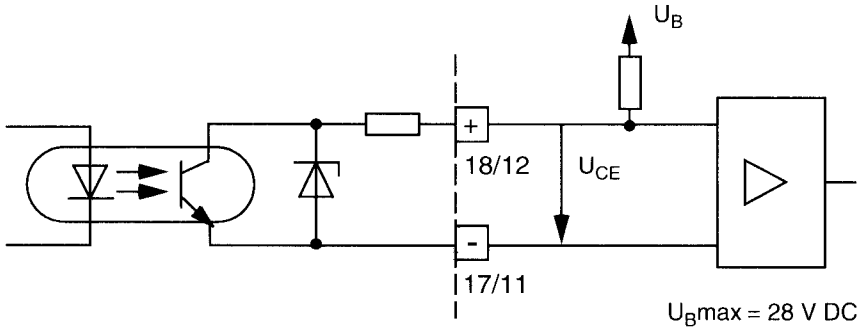


VEGASEL 444 / 444 D

The electrical connection is made on the mounting socket acc. to the wiring diagram on the back of the instrument.

Option: Floating transistor output (VEGASEL 441 B)

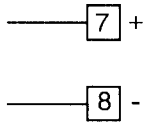
or floating transistor outputs (VEGASEL 444 / 444 D)



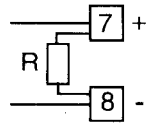
$U_B$max = 28 V DC
$I_B$max = 10 mA
U_{CE} min < 0,8 V at I_B = 10 mA

Input signal: 0 ... 20 mA (VEGASEL 441 B / 444)

Input 0 ... 5 V

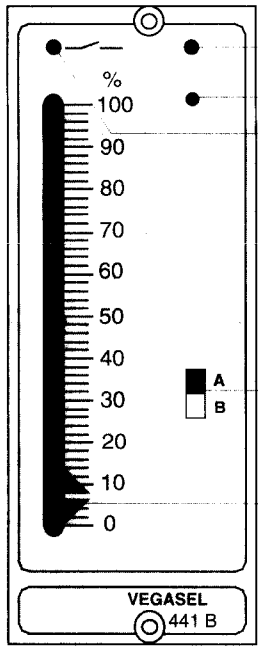


Input 0 ... 20 mA

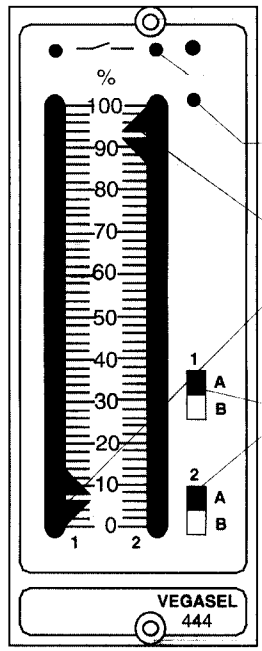


For input signals 0 ... 20 mA a resistor should be installed on the mounting socket between terminals 7+ and 8-.
R = 249 Ohms; 1 %; 0,2 Watt

Start-up



Fixing screw
Mains control lamp
Spindle potentiometer
Relay control lamp
A/B-switch
Tandem potentiometer
Fixing screw



Fixing screw
Mains control lamp
Relay control lamp 1 and 2
Spindle potentiometer
Tandem potentiometer 1 and 2
A/B-switch 1 and 2
Fixing screw

- Feed supply voltage. **The voltage must comply with that stated on the wiring diagram.**
- A/B-switch to desired mode A or B (function of A/B-switch see following description)
- Adjust required switch point(s) with tandem potentiometer (see following description page 7)

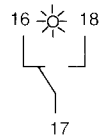
Note:
The 100 %-switch point is pre-adjusted for an input voltage of 5 V.
For input voltages between 4 ... 6 V the 100 %-switch point can be adjusted with the spindle potentiometer (15-step).

Switching condition of the relay (e.g. VEGASEL 441 B) in dependent on the input signal

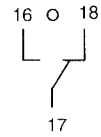
a.) Function as one-point level point

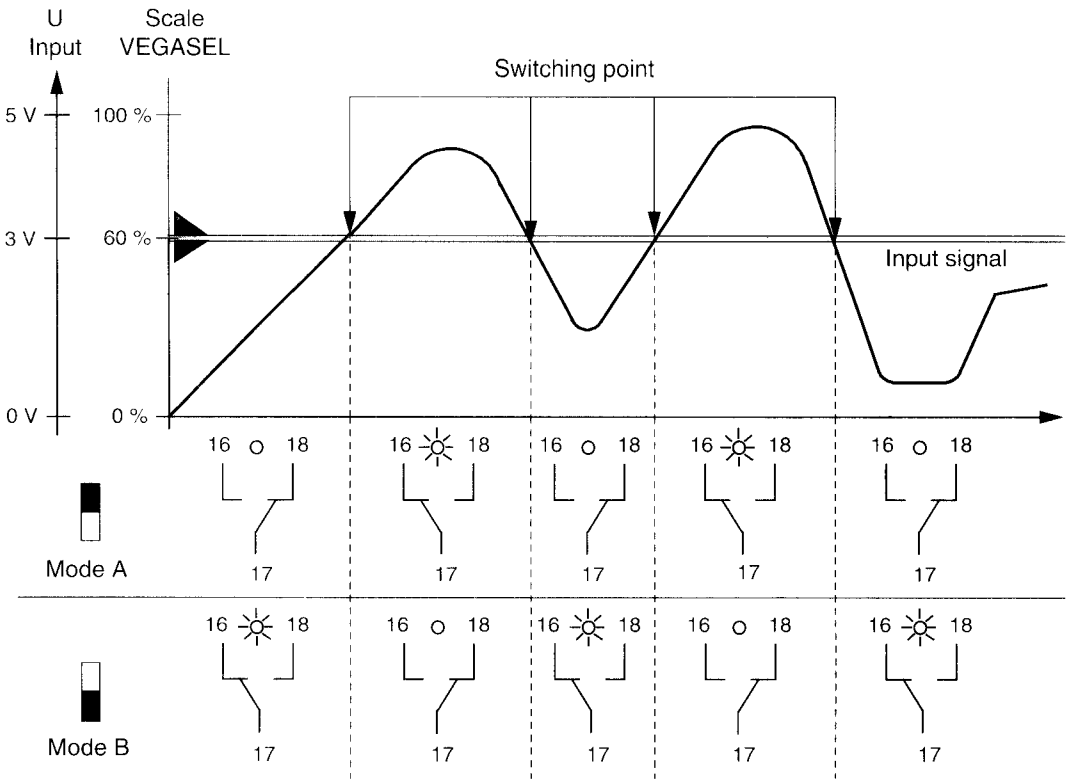
Legend:

Relay de-energized
Relay control lights

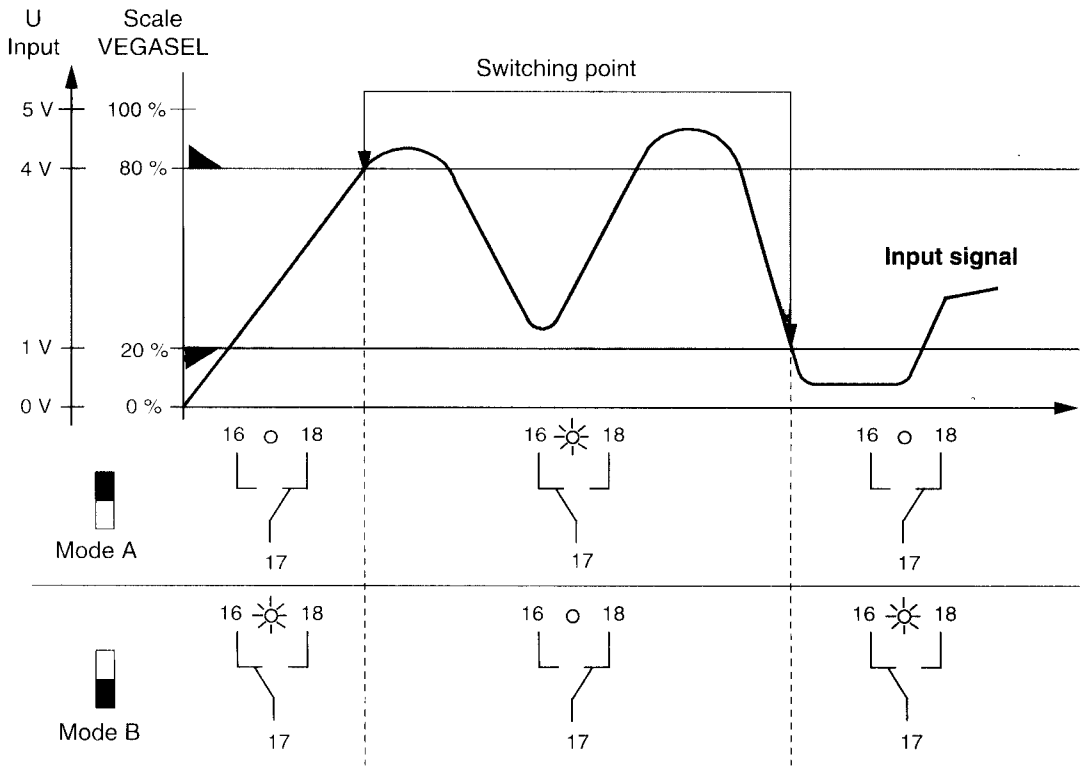


Relay energized
Relay control does not light





b.) Function as two-point level switch
(switching hysteresis in the example 60 %)



VEGA

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Technical data subject to alterations

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